EXPOSURE ASSESSMENT AND SOURCE CHARACTERIZATION OF LEAD IN LATINO CHILDREN IN SAN DIEGO, CALIFORNIA

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Background and Aims: Lead poisoning is an insidious problem to which Latino children may experience additional exposure related to their cultural practices. The current cross-sectional exposure assessment study evaluated environmental (housepaint, dust, soil and water) and cultural factors (family acculturation, child behavior and exposure to potentially lead-contaminated Mexican products) plus socioeconomic status and heath care access.
Methods: This 2006 study was conducted in 15 census tracts in southern downtown San Diego, California. Parents/guardians of 166 Latino children (aged 12 - 71 months) from 128 households participated. Environmental samples and child blood samples were analyzed for lead and a questionnaire, including photos, was administered. Lead exposure due to contaminated candy was estimated based on California Department of Public Health analyses.
Results: The 68% participation rate was quite respectable for this underserved group (77% spoke Spanish at home and 80% of respondents identified as Mexican). Blood lead measurements on 89% of the child participants indicated a 2 µg/dL median value, with 9% at or above 5 µg/dL. Mexican candy consumption (1 to 6 g/day) was the only important cultural exposure reported. Close to 90% of analyzed candy had undetectable lead levels (< 0.05 µg/g), which IEUBK modeling indicated are unlikely to represent daily child intakes of more than 0.1 µg lead/day in the most conservative scenario. SAS Generalized Estimating Equations modeling indicated elevated blood lead levels related to child age and gender, candy consumption, soil lead levels and child private health insurance coverage.
Conclusions: This work served an exploratory purpose, providing both a solid methodologic basis for future work and hypothesis generation. More work is necessary to evaluate the extent to which both environmental and cultural components are driving lead exposure.The study's culturally-appropriate in-home phlebotomy approach proved so successful that its implementation to reach the most underserved Latino children merits consideration.